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A CASE OF CYSTIC TRANSFORMATION OF THE KIDNEYS AND LIVER.

BY CHARLES WORKMAN, M.D.,

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GLASGOW Royal Infirmary Pathological Reports, No. 2205. Date, 3rd March, 1899. The patient, James T., aged 34, a lorryman, was admitted to the wards on 27th February, 1899, as an "urgent abdominal case."

He was quite evidently very ill, and complained of abdominal pain. He had been ill for at least three months, but had got very much worse in the ten days previous to admission. He had had no vomiting, no diarrhoea, and no headache. On admission he got frequent enemata with good effect, and they gave great relief. The abdomen on admission was greatly distended, and hard masses were felt on both sides, more especially, however, on the right. It was thought that the liver was much enlarged. The urine was small in amount and contained blood and abundant albumen, but no casts. Patient progressed fairly well till the evening of 1st March, when he became drowsy, then showed twitchings, and later became blind. The twitchings increased and ended in convulsions and death about 4.5 a.m. on 2nd March, in spite of active treatment. The symptoms were typically uraemic. (Report from Ward.)

Post-mortem Inspection.—External Appearances.—A well-developed and well-nourished body. Post-mortem rigidity pronounced. Pupils dilated and equal.

Thorax.—The pericardium contained about $1\frac{1}{2}$ oz. of clear

serum. The heart was considerably enlarged, especially from dilatation and hypertrophy of the left ventricle, and weighed 15 oz.

The aortic and pulmonary curtains were competent, and these valves presented healthy appearances. The mitral orifice had a circumference of 115 mm., the tricuspid of 160 mm., and these valves also appeared healthy. The muscular tissue of the heart's wall was of good consistence and colour, and the coronary arteries, though a little atheromatous, were not narrowed. The right ventricle was slightly dilated.

The left lung was fairly voluminous and healthy; it was free from pleural adhesions. The right lung was adherent from old pleurisy, but otherwise presented healthy characters.

Abdomen.—The stomach was large and considerably distended. The mucous membrane of its cardiac end was softened by post-mortem digestion. The duodenum appeared healthy. The pancreas was large and healthy. The liver was somewhat enlarged (68 oz.) and rather pale; on careful examination it was found to present translucent areas due to the presence of cysts, generally about the size of small peas, which were scattered singly, and appeared to number only a dozen or so in the whole organ. The gall-bladder contained fluid bile, which escaped readily into the duodenum on pressure. The spleen was normal in size, $4\frac{1}{2}$ oz., but rather pale.

The kidneys had undergone a most extreme cystic transformation, being enormously enlarged; the right weighed 67 oz., the left 65 oz. They appeared to be made up of an immense number of translucent bladders, varying in size from that of a pea to that of a small orange. The contents of these cysts varied greatly in colour and consistence: some were almost black, others dark red, some straw-coloured, and others like milk or cream; some were quite fluid, others of the consistence of jelly, while some had the appearance of pus, and others the consistence of caseous material in various stages.

This gave to the organs a most remarkable appearance, resembling masses of conglomerate made up of pebbles of very various colours. The cysts containing red and black

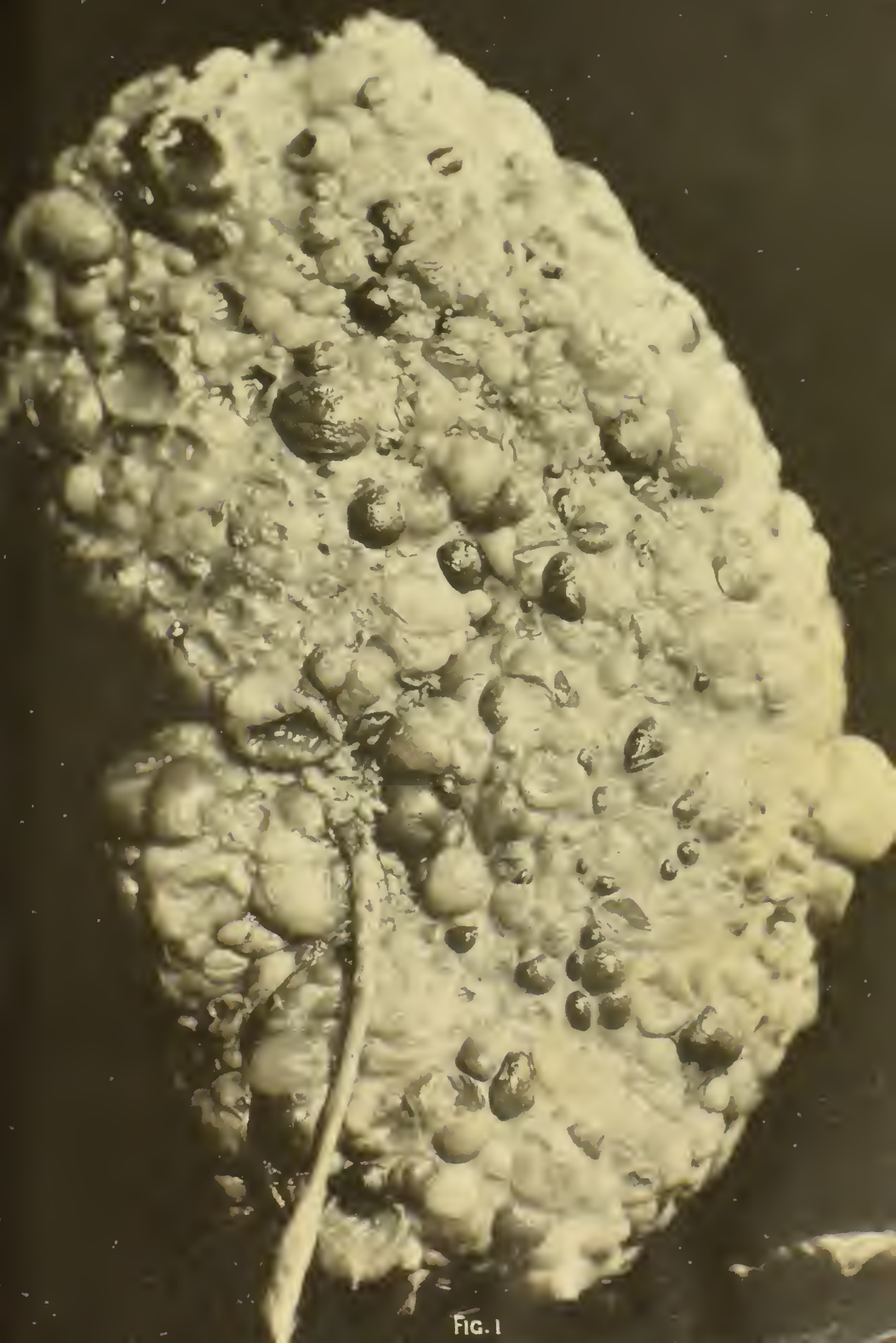


FIG. 1

material appeared to have extravasated blood in varying quantity and condition in them.

Microscopic sections were prepared from several parts of the kidney, and these show that the cysts are mostly lined with a single layer of squamous epithelium, and that between the cysts there is still a considerable amount of comparatively healthy kidney substance with tubules and Malpighian tufts. Sections have also been made of the cysts in the liver, and these show a structure almost identical with those in the kidneys.

The most generally received theory as to the origin of this form of transformation is that the cysts are retention cysts, caused by obstruction in the urinary tubules, giving rise to distension either of the Malpighian capsules or of portions of the tubules.

In the case which I have described this explanation is untenable, for the condition has affected not only the kidneys, but also the liver. Further, on carefully examining microscopic sections of the liver, I find that the structure of the cysts with their lining epithelium is entirely different from that of the bile ducts, and also from that of the liver acini; the very small cysts are readily seen to have no connection with the neighbouring ducts, and to be lined with a single layer of squamous or tessellated epithelium, while the ducts are very distinctly lined with columnar cells.

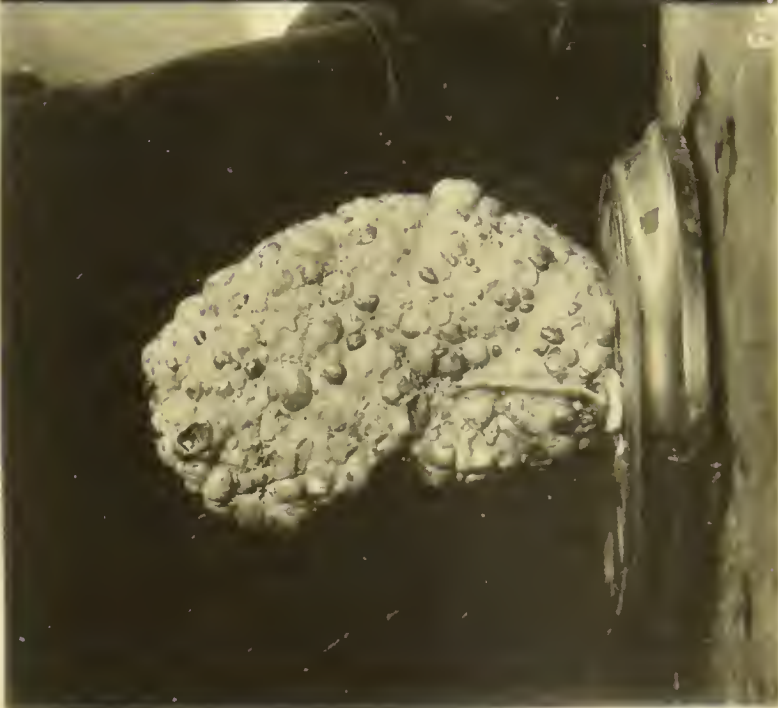
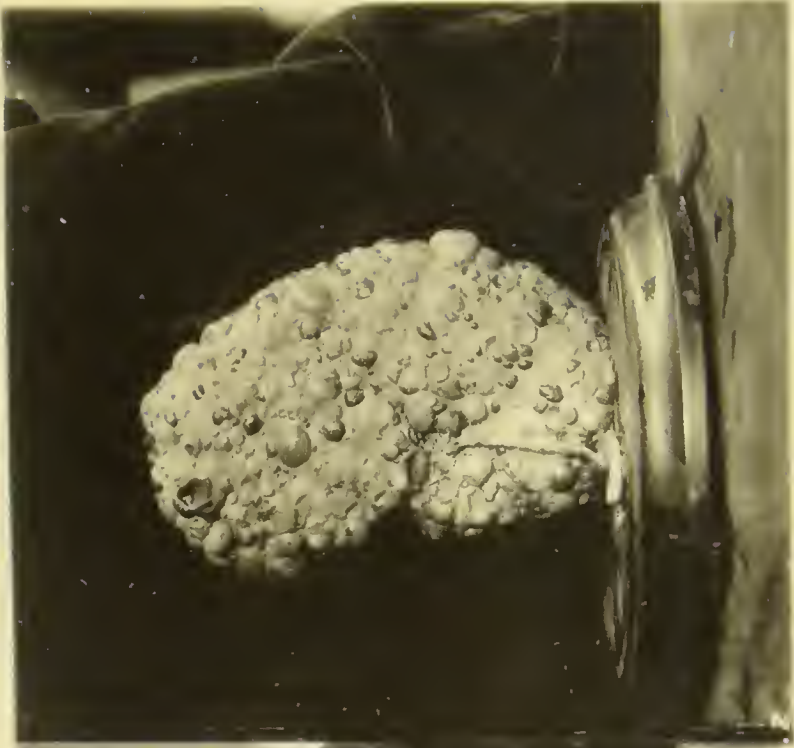
Microscopic examination of sections from various parts of the kidney, shows that, though at some places the cysts appear to have taken origin in the tubules, they as often seem to have no connection with either the tubules or the Malpighian capsules. The tubules, which are present in great numbers in the tissue between the cysts, are very irregular in size and shape, and their epithelium is often in various stages of degeneration. Apparently the irritation of the cyst formation has caused in many places considerable inflammatory reaction, evidenced by masses of leucocytes and the presence of much new-formed connective tissue. The Malpighian capsules and tufts, though frequently much deformed by pressure, are present in large numbers.

Probably the condition is very slow in its progress, and in this case it seems to have given rise to no suspicion of renal disease till almost the end. From this fact, along with the histological structure of the kidneys and the involvement of the liver, I am inclined to consider that the condition is allied to tumour formation, being perhaps a species of adenoma. The parenchymatous and interstitial nephritis, and the distension of tubules caused by them, I consider secondary and simply an effect of the irritation and pressure of the cystic adenoma. The sections of the liver do not show any cirrhotic condition, and, indeed, except for slight hyperaemia noticeable in the sections and the presence of the cysts, the liver appeared remarkably healthy.

The presence of cysts in the liver or other organs does not seem to have been noticed by a number of those who have examined cases of cystic transformation of the kidneys, and in many it may have been absent. Pye Smyth considered that the association was merely a coincidence. Lionel Beale injected the ducts of the liver from a case of Bristowe's, and found no connection between the ducts and the cysts.

The latest accounts that I find of this condition are by von Mutach, "Beitrag zur Genese der congenitalen Cystennieren," *Virchow's Archives*, Vol. 142, page 46; and P. Schultz, *Ueber congenitale Cystennieren*, Inaug. Dissert., Halle, 1896. Both these writers appear to be considering the condition in childhood, and they both adhere to the view that the cysts are retention cysts.

A case occurring in a woman, aged 40 years, is described by Charles Kennedy, M.D., in the *Edinburgh Laboratory Reports*, Vol. III., 1891, and the etiology of the conditions is discussed. In this case also the liver was affected, and the author states that the "weight of evidence and authority is in favour of the multiple cysts of the kidneys being retention cysts"; the author evidently adheres to this view, and considers the cysts in the liver to be retention cysts of the bile ducts. Kennedy gives a list of the literature up to the date of his paper. A good account of the foreign papers on the subject will be found in Ziegler's *Beiträge zur pathol. Anat. und allg.*



Pathol., Vol. XII., by Nauwerck & Hufschmid, "Ueber das multiloculäre Adenokystom der Niere."

Along with the account of my case I give two plates, No. 1 showing the left kidney about one-third of the actual size. This is a collotype from a negative which I made from the kidney as it appears preserved by the formol method in glycerine and acetate of potash. The 2nd plate is taken with a stereoscopic camera from the same kidney, and when looked at with a stereoscope gives the natural rounded appearance of the preparation.

The left kidney and half of the right are preserved in the Museum of the Glasgow Royal Infirmary, and the other half of the right was presented to the Museum of the Western Infirmary.

